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THE OCEAN'S UNEASY BED. BRW LIGHT SHED ON EARTHQUAKES

scoveries in Embylonia by Mr. Haynes of the University of Pennsylvania — Records of 1,000 Years Before the Christian Ern—Jubi

so Scenes-Improvement in Public Health. LONDON, June 25,-The alarming frequency of earthquakes during the past year or two and the enormous destruction to life and property in various quarters of the world which they have wrought are attracting public attention in England to the investigation of seismic phenomena. The latest calamity to ill-fated India has emphasized this interest, and such information as science is able to furnish on the subject is eagerly read by all classes of the general public. Scismology is very far from being an exact science. The earthquake is almost the latest form of natural phenomena to be seriously studied, and the science has as yet few votaries and still fewer authorities. Among these latter, as the readers of THE SUN already know, is Professor John Milne, who, in his curious laboratory on the Isle of Wight, may be said to keep his finger constantly upon the pulse of the

earth.

Prof. Milne delivered a lecture before the Royal Geographical Society one evening this week upon the causes of seismic disturbance which exist "in the silence of the central sea." It has long been known, be explained, that the earth beneath great ocean depths is not absolutely at rest. Tiny organisms fall, like a perpetual drizzle, on the ocean floor; earth dust yet more minute sinks gradually down through the water; but this cone accumulates with extreme slowness. Besides this, the floor itself may be uplifted or depressed; but these movements also had been supposed to be very gradual -so much so, that they could not be detected, could hardly be inferred directly, from any ob-servations made by man. Prof. Milne, however, shows that there are occasionally very signifi-cant hints of what is going on, and now and then Nature moves more abruptly than some of us suppose. Submarine cables indicate unexpected disturbances; now the gutta percha is melted, as if by heat; now the cable is broken, as though by a strain; now it appears to have been

buried by a mudslip.

There are, it seems, two sets of causes which produce movements beneath the surface of the sea. The one is the slow foldings, fractures, and crushings of the crust-causes which on land have produced mountain chains, and are conpicuously recorded on their rocks. The other is the effects of erosion and sedimentation. The removal of material from one place, as from a ea-worn coast, and the deposit of it in another. produce exactly the same result as the piling up materials elsewhere would do, namely, unstable contours, which may ultimately cause movements of various kinds. In other words, there may be landslips below the water just as much as there may be above it, and from not dissimilar causes. Both these kinds of influence probably affect large areas. There is a third, but more localized, modifier of the sea bed—the submarine volcano. All three may produce earthquakes, the first especially. Bent rocks may at last break under the strain; one or both parts of the divided mass may start forward, as it were, with a jump; myriads of tons of rock are set in motion, and a shudder is propagated through the earth's crust, which, when it originates beneath the ocean, may shatter cities on reaching the land, and may raise huge waves, that come sweeping along the coust, bringing death and destruction to the lowlands The first jerk may not be the only one; again and again, if the crumpling process continues, new slips may occur along the line of fracture, and fresh shocks be propagated through the

One object of Prof. Milne's lecture was to point out the circumstances in which these disturb ances are most likely to occur. An earthquake and a movement of some kind stand in the relation of effect and cause. Sometimes this move ment is of an explosive character, and the shock is directly connected with volcanic action, but ments tending to wrinkle the earth's crust. Prof. Milne, during his residence in Japan-a veritable land of earthquakes—took some pains to ascertain whether the shocks were started in the mountain region or beneath the sea and found that out of four hundred and nineteen shocks, less than one-sixth had originated inland, more than half beneath the occan, and the rest near the coast, and even of these a good many had come from the sea. Besides this, he has observed that wherever the land descends rapidly beneath the surface of the water, whether from a coastline or into an ocean basin, there earthquakes are likely to originate. while gentle slopes are rarely the sites of disturbance. Slipping of materials also occurs much more easily in the former case, so that here disturbances of all kinds become more probable. In the northern part of the Indian Ocean there is a rapid deepening of the sea bed, and on either side much accumulation of ma

In a recent letter I gave some brief account of the remarkable discoveries made in Babylonia in the course of the excavation of the ruins of Nippur by Mr. Haynes, who has been at work for several years under the auspices of the University of Pennsylvania. It is impossible to overestimate the value of the archmological revelations which have followed the exploration of a buried city-the oldest in the world as far as is yet known, the foundations thereof having been laid 6,000 or 7,000 Years before the Christian era. A corresponden of the Times gives fresh details of some of Mr. Haynes's discoveries, which cannot fail to attract the attention of all who find interest in the 'ascinating process of tracing the history of the race further back than any known records sacred or profane. He writes:

The methods of systematic research such as were employed by Curtius, Schliemann, and Petric, working on strictly scientific principles, laying bare stratum after stratum of the ruined city, noting with care the position of every ob ject, no matter how minute, and, above all, the aid of photography, had never been applied until now, and the result is a complete revolution in our knowledge. 'By this method the history of the excavated city may be read like a book, each stratum as it is uncovered furnishing us with a chapter of its long-lost history. The story of Nippur as road in its ruins is indeed a remarkable one.

The great mounds of Nuffar are situated on the east bank of the now dry Shat-en-Nil, a great main artery navigation canal which once neected Babylon with the Persian Gulf. The central feature of the ruins is a vast conical wound, called by the Arabs Bint el Amir, 'the Amir's daughter,' which rises to a height of hearly twenty-nine metres above the surrounding plain. This mound marks the site of the great riggerat or temple stage tower first built by Ur-Gur, or Ur-Bahu, as he was formerly called, about B. C. 2800, and subsequently re paired and added to by later Kings. This vast structure was the central point of the explora-

We have long been familiar with another of the great stage towers erected by Ur-Gur at Mugayyar, the ancient Ur; but the one at Nipthe first that has been thoroughly explaced. The tower rests on a basis 59m. by 39m., built, like most of these Babylonian towers, with the angles to the cardinal points It appears to have consisted, like that of Ur' of three stages only, not seven like the later towers at Babylon and Khorsabad. Each stage had a thick coating of plaster, composed of clay protect the lower stage from the winter rain it was faced The ascent was on the southeast side, and here to Hargon. Among these broken fragments,

it would seem Mr. Haynes has made a most im portant discovery. Two walls of burnt brick 3.40m. high, 16.32m. long, and 7m. from each other, were built out into the temple courtyard. and this cansoway was filled in with crude bricks and formed a broad roadway leading up to the tower. The whole temple inclosure i rrounded by a massive wall, of which more

than thirty courses are still visible. The arrangement of this temple and tower of Ur-Gur bears a most striking resembla the early Egyptian pyramids, especially Medum and the stepped pyramid of Sakkara, while the causeway recalls that of the second pyramid of Khafra, which connects it with the se-called temple of the Sphinx. The question often sug gested by archeologists has been, were thes stepped pyramids connected with the temple towers of Chaldea or borrowed from them? There is now, however, a possibility of our re versing this question, in the light of these discoveries at Nippur. The pyramid we know was but an elaboration of the Mastaba, and the reemblance between these and the towers at Ur

and Nippur is most striking.
"In the face of evidence from Nippur we may have to reconsider the question of Chaldean in luence on Egypt, and, indeed, possibly reverse the old theory. The tower rests upon a massive brick platform of crude brick. Excavations conducted below this revealed the existence of a second payement of much finer construction, being built of kiln-burnt bricks of great sizethe dimensions being 50cm, square and of great thickness. Nearly the whole of these brick were inscribed, and bore the stamps of Sarcon L. and Naram-Sin, his son, and its date, therefore, is just a thousand years prior to the buildings of Ur-Gur—namely, B. C. 3800. From the inscriptions of both these Kings we know that they oth built large portions of an older temple of Mullil, for the bricks bear the inscription 'Builder of the temple of Mullil,' and dedicated number of vases to the temple inscribed with their legends. These buildings have been entirely removed, and the surface of the vast platform levelled for the reception of the edifices of

"Proof of the great buildings of Sargon and his son is afforded by some excavations to the northwest of the temple. Here was a line of mounds which marked a rampart, and Mr. Haynes in 1895 cleared a portion of it and un-earthed one of the most extraordinary pieces of masonry ever discovered. The foundation consisted of a solld bed of clay mixed with straw and puddled down, resembling some of the con structions found by Dr. Schliemann at Hissar lik. Upon this foundation and plinth was con-structed a solid brick wall, 52 feet in thickness and rising to an unknown height. The builder of this wall was Naram-Sin, whom so many have regarded as a mythical king. It is pro able that this rampart formed also a broad road-

way round the city. "Directly to the southeast of the great tower and close to the great rampart Mr. Haynes dis-covered a chamber 11m. long, 3.54m. wide, and 2.60 high. As there was no doorway it was evia vault entered from above. Its floor rested upon the platform of Naram-Sin, and it formed a communication between the two strata.

The inscribed bricks proved it to have been built by Ur-Gur. What was its purpose is explained by the discovery of a second chamber of the same kind immediately below it. In this scond chamber a brick stamp of Sarron was found imbedded, and broken stamps and some few tablets were found in the room. The explanation is now easy. Round the walls ran a arrow shelf, on which some tablets and brick stamps were found. The chambers were the archive chambers of the temple; the smaller one that of Sargon, which had been partly restored by Ur-Gur, while the second was that of the King, built up to the level of his own pave-

"It is clear that at some time between the time of Ur-Gur. B. C. 2800, and the rise of the Kassita dynasty, B. C. 2200, the archive chamber had een broken into and large numbers of objects carried away and the rest broken and scattered. There can be little doubt that this disaster took place during the terrible Elamite invasion in B. C. 2285, when all the principal temples were perhaps more often—the latter also stands pillaged and their treasures carried to the rather in the relation of consequence to movewhich bears on one side a dedication by Dungi to Mullii, and on the other a dedication by Barnaburyas, B. C. 1400, which states that it was taken from 'the palace of Susa in the land o The amount of debris from the pavement of Naram-Sin to the top of the mound is 11 metres in height, and this, we know, took close on 4.000 years to accumulate Mr. Haynes, encouraged by the success of his work in the upper stratum, proceeded to excavate to reach the virgin soil, which he did at the depth of 9.25 metres, passing through the débris of ruined buildings, accumu lations of broken pottery, and fragments of in scribed stone objects and well-constructed drains. These remains prove the existence of at least two temples below the pavement of Naram-Sin, which at the most rapid rate of debris accumulation cannot be assigned to a later date than between six and seven thousand years before the Christian era. This lowest stratum has been much disturbed and the buildings piliaged; still, sufficient remains to reveal to us earlier phases of Babylonian civilization than we have ever seen. The first structure discovered was an altar of sun-dried bricks, 4m. by 2.46. The upper course had a rim of bitumen, and upor the altar was a large deposit of white sahes. Round the altar was a low wall marking the sacred inclosure. Outside of this inclosure were found two immense vases of terra cotta. These great specimens of early pottery were each 63.5cm. high and decorated with rope pattern. We have here in this simple, sacred precinct the germ from which sprang the great temples of Chalden-the altar, with its tem entered only by the priest, and the two great vases for purification, replaced in after times by the greater and lesser absu, placed before the temples. A somewhat similar construction was discovered at Sippara, but its archaeological value was not recognized. Southeast of the altar was found a remarkable structure, a brick platform, 7m. square and 3.38m. high, built of fine unbaked bricks. Itound the base of this Mr. Haynes found a quantity of water vents, which indicated a connection with some recep-tacle below, and on sinking beneath this solid mass he found a drain passing underneath the platform, in the roof of which was the earliest known keystone arch. It is 71cm, high, and has a span 51cm. The bricks are well baked, and joined with stiff clay as mortar. Thus the priority of Chaldes in the use of the keystone arch is clearly established.

Over 26,000 tablets, as well as numerous inscribed fragments of vases and stelle have been recovered from this site. It is, therefore, clear we have no lack of material. It must be remembered, as we have already said, that the record chambers of both Sargon and Ur-Gur were sacked by the Elamite invaders of Kudur-Nakhunte in B. C. 2285, and this will account for so few inscribed records being found in the lowest strata. That, however, there had been numer ous records of the pre-Sargon period which had been removed to the treasury of Sargon, and subsequently to that of Ur-Gur, is shown by a most important find. Under a pavement of Ur Ninip, a king of the dynasty of Ur-Gur, were found quantities some hundreds of broken vases and other objects that had been votive offerings to the shrines of Muilil from the earliest times. Among these were some of the most archaio type, even more pie torial than those discovered by M. de Sargeo at Tello. Among these was a large stone be inscribed with a linnamed Lugal-Kigub-Nidudu. Upon this we find a second indorsement by Sargon, written years after in arrow-headed characters. Here we have a manifest proof of the priority of this monarch

purposely destroyed, were the fragments of over a hundred vases dedicated by a king named Lugal-zaggi-si to the temple. From these texts Prof. Hilprecht, almost at the loss of his eye sight, has constructed a complete text of 182 lines written in a most archaic character. Fragments of similar vases were found beneath the Sargonide pavement. The most conclusive proof. however, is afforded by the examination o these inscriptions along with the earliest monuments from Tello, where they are found to form a complete historical series relating to affairs which no mention is found, either in the time of Sargon or after,
"All of these records relate to a series of prim

itive wars and form certainly, whatever their age may be, the oldest historical records known. The earliest of these is the inscription of 'Es angagana, written in most archaio charactersthis monarch is styled 'Lord of Kengi,' that is, Lower Babylonia, 'the land of channels and reeds.' In his time the chief enemy of Babylonia was the city of Kish, the modern El Hymer whose priest ruler had entered into alliance with some fierce tribes called 'the hosts of the Land of the Bow,' a people regarding whom we shall have some remarks to make shortly. The first ascription records a war against them by the Babylonian King. It describes how the Baby onians 'conquered the King of Kish and his ally,' the cyll-hearted 'horde of the Land of the Bow,' spoiled his city and burned his property, carrying away the statue of the King, his bright silver and his furniture which he dedicated to Mullil. The next inscription in this sequence is one of the King of 'hordes of the bow' who had had his re venge and conquered Babylonia. This inscrip ion is engraved upon the vases which he ded cated to the temple. It begins by an ascription saggi-si, King of Erech, the son of Ukus high priest of the Land of the Bow.' Thus we see that the conqueror had established himself in the ancient capital of Erech, and from his incriptions we learn also that he ruled in Ur-Larsa as well as in Nippur. The King then describes his empire as extending from the Lower Sea of the Tigris and Euphrates to the Upper Sea (Mediterranean), and as being granted dominion over all lands from the rising to the setting of the sun, whom he has caused to dwell in

During the five nights of the jubilee celebration that the streets of London were packed with a moving mass of humanity there was one feature in the crowd that would not fail to attract any one's attention. This was the enormous number of very young children and babies in arms that spent the long nights in the open. It was impossible to leave them at home by hemselves for so many hours at a stretch, so they too had to come and see the sights. Fortunately the crowd, huge as it was, was quiet and orderly and no accidents happened to the very small fry that worked in and out between its legs. On the Tuesday the good folk who represent the Salvation Army in the East End too charge of many babies to allow mothers to be present at the celebrations. At night the babies were returned to their proper owners, right side up, and in good vocal condition.

So much for the babies who had arrived on the scene of their earthly troubles in time to be able to say in after years that they were alive when Victoria celebrated the sixtieth year of her reign. Some, of course, arrived an hour or two late. A proud husband in Clapton writes to a morning paper to announce that his wife pre-sented him with a daughter at the very time that the Queen was passing through the streets. He is anxious to receive any special gifts there may be going for the parents of jubilee babies.

The keepers of eating houses, especially in the City, reckoned on reaping a rich harvest on June 22. They laid in vast supplies of food, and, in true jubiles spirit, announced jubiles prices. But they reckoned without their hosts, rather without their guests. Nothing in the whole day's proceedings caused so much surprise as the complete case, except at a very few points, with which it was possible for the masses of sightseers to come and go. People who came to their seats at 5 or 6 in the morning found, to their disgust, that they kfasted comfortably at home and come along at 8 or 9-in some at 10. And this it was that led to the disappointment of the restaurant keepers. Thouands upon thousands who thought that once they had taken up their positions it would be impossible to move for many hours came pro-vided with flasks and sandwiches, while those who had trusted to luck found, to their joy, that when the procession had passed they were able to go home straightaway, with little, if any, dif-Sculty. And so the eating-house men got left. One of them makes a virtue out of his necessity He had evidently laid in great stores of sweet stuff, for he is circulating handbills, saying that, to celebrate the glorious occasion, he is usly going to provide all his customers on June 24, 25, and 26 with free pastry at all their

The Lord Mayor and Shoriffs of London held a meeting in the Guild Hail the other day to prooare an address to the Queen on the subject of the improvement in the state of public health which has been brought abou; during her reign The facts and figures brought forward were teresting and striking, almost startling. In 1844 Macaulay compared the mortality of the ondon of that date with the London mortality of 1684. When Macaulay wrote the death rate was about 25 per thousand; in 1685—not a sickly year-one in every 23 Londoners died, a death rate of between 43 and 44 per thousand. At the present moment the London death rate is 14.9 per thousand. So that, in spite of the enormous nerease of the population and the difficulties which such an increase always places in the way of sanitary administration, the mortality of London is less than one-third of what it was

three centuries ago.

Equally striking are the facts with regard to mortality of the whole of England and Wales during the last sixty years. During the ten years from 1838 to 1847 the mean annual death rate for England and Wales was 22.16 per thousand, while for the ten years from 1881 to 1890 it was 19.1 per thousand. This implies on an estimated population of 29,000,000 that 77,000 persons were kept alive in each year of the latter period who would have died in each year of the former.

Dr. Thorne Thorne, in order to guard against the liability of a people to overestimate its own achievements, appealed to the testimony of Henri Monod, an official of the Ministry of the

MARINE CORPS STIRRED UP.

M'CAWLEY'S APPOINTMENT SAID TO VIOLATE THE LAW.

He la a Civilian, Thirty-two Years of Age, and was Nominated by the Fresident to He a Captain and Assistant Quartermaster Vig-orous Opposition to His Confirmation, WASHINGTON, July 3 .- Nothing has occurred in a long time which has so stirred up the offi-

cers of the Marine Corps as the promotion of Capt, Frank L. Denny to be Major and Quar-termaster and the nomination of Charles L. McCawley to be Captain and Assistant Quartermaster. The promotion of Capt. Denny ! bad enough in all conscience, from the point of view of the service, but the appointment of young McCawley fairly provokes marine officers to violation of that one of the articles of war which forbids the utterance of sentiments derogatory to the President. And when they are exasperated to the point of criticising the Commander-in-Chief what won't they say about the Colonel Commandant who rece the appointment.

The objection to Major Donny is deep-seated and old. It is based wholly on the fact that throughout his service he has had a more cffective working "pull" than any other man in the corps. He has seen only seventeen years of service and more than two-thirds of it on ahore. He was well down in the list of Lieutenants when he was made Captain and Assistant Quartermaster. If he had stayed in the line he would have been junior to all the present Captains but two. There are Captains in the Marine Corps who have seen thirty-five years of service. Some of them carried muskets in the civil war and carned their first kets in the civil war and earned their first shoulder straps by conspicuous gailantry in the field. But this young man now ranks them all and besides will never have to go to sea.

The opponents of Major Denny say that his promotion was brought about by a deal for the retirement of Major Lowry, similar to the deals which have just been carried through in the army and in the navy. Major Lowry retired and Capt. Collum was promoted. That pushed benny up a number, and Liout, Prince was promoted to the vacancy. Then Major Collure retired and Denny was promoted. But this time a civilian was put into the vacant Captaincy. It is openly said here in Washington that the arrangements for the deal were such that the two Majors who retired voluntarily before they reached the sage limit will not suffer from the loss of their active service pay. The fact is recalled that Col. Heywood, the commandant of marines, tried repeatedly to force Major Lowry to retire and falled every time. Since the beginning of the year he has had the Major on the rack three times. Once he preferred charges of incompetency and inattention to duty. The giving of the laundry contract was specified under those charged. In response to the advertisement for bids for that work only one bid was made. That was for \$10 a hundred, but Major Lowry let the contract. It was charged afterward that the successful bidder had formed a combine with his competitors so that they held off, and then he divided the spoils. Major Lowry showed the court of inquiry that the bid went through the commandant's office, and that specification was dropped. In the end the Major beat the court and all the charges fell through. Then Col. Heywood ordered Major Lowry before a Medical Board of Survey, and the board reported him unfit for duty. In the regular course he went before the Retiring Board, but this time he won. The board reversed the Board of Survey, and the board reported him and Prince were promoted there was no great objection, although it was doing with Prince something of shoulder straps by conspicuous gallantry in the field. But this young man now ranks thom

lleywood ordered Major Lowry before a Medical Board of Survey, and the board reported him unfit for duty. In the regular course he wentered the Roard of Survey, and the board reversed the Board of Survey, and the wontered the Board of Survey, and the wontered the Board of Survey, and the wontered the Board of Survey, and the Major remained on duty.

In view of these facts there was some surprise when Major Lowry voluntarily applied for retirement under the length of service act. But when he was retired and Collum and Prince were promoted there was no great objection, although it was doing with Prince something of what had been done with Denny. It was the last part of the deal that stirred things up. It has been a constant complaint from Col. Heywood that promotion in the Marine Corps was so slow as to be discouraging to men who were ambitious. He has been be fore the naval committees of every Congress for years with appeals for measures of relief. When the Meyer personnel bill was before Congress Col. Heywood was particularly active. He urged with emphasis the merits and the claims of the men in his corps who had served the Government for many years. That was all very fins, and the old Captains were with the Colonic commandant heart and soul. But now they call attention to the fact that at the very fins, and the old Captains were with the Colonic commandant heart and soul. But now they call attention to the fact that at the very fins, and the old Captains were with the promotion all down the line the Colonce has recommended the appointment of a civilian.

It is urged by the supporters of Major Denny that his present promotion is in due course of law. Col. Heywood himself declares that no injustice whatever was done by it, and calls attention to the fact that Denny was the ranking staff Captain and directly in line of promotion when Collum rettred.

"It is not the policy of the Navy and Marine"

attention to the fact that Denny was the ranking staff Captain and directly in line of promotion when Collum retired.

"It is not the policy of the Navy and Marine Corps," he said recently, "and never has been to appoint line officers to staff vacancies."

Apparently, say the other side, the appointment of Lieut, Prince didn't count. Or perhaps the Colonel Commandant had forsotten it. Officers who served from twenty to twenty-five years before reaching the grade of Captain, and who have no prospect of promotion to the grade of Major until they have served more than forty years, are discouraged by the promotion of officers of less than half their service, and with no special distinction for meritorious service. They declare that the contention that Denny's promotion was compulsory is taking advantage of a technicality in a law which was passed with no thought whatever that it would be made to apply to such cases. They recognize, however, all the force there is in the Denny argument, but they declare that it comes with poor grace for that side to cite the law when in the appointment of McCauley a specific statute was figurantly violated.

Section 1,599 of the Revised Statutes of the

for that side to cite the law when in the appointment of McCauley a specific statute was flagrantly violated.

Section 1.599 of the Revised Statutes of the United States says:

"No person under 20 or over 25 years of age shall be appointed from civil life as a commissioned officer of the Marine Corps."

McCawley is 38 years old, and the officers of the Marine Corps who oppose the confirmation of his appointment declare that he is barred absolutely by that section of the Revised Statutes. The feeling created by this appointment is not confined to the Marine Corps. Many officers of the navy have not hesitated to denounce it as an outrage, and even army officers condemn it vigorously. McCawley has seen no services of any sort. He is the son of Coi. C. G. McCawley, who preceded Coi. Heywood as Commandant of marines. He has been a clerk in Coi. Heywood's office, and it is said very plainly by his opponents that he is unfitted by lack of experience for the difficult and important duties of the office to which he has been nominated. Marine officers here do not understand how the nomination was made. They say that even if the President was Ignorant of the absolute prohibition of the law, the Colonel Commandant must have known of it, and yet the appointment was made on Coi. Heywood's recommendation, or, at least, with it.

There is very vigorous opposition before the

ment was made on Col. Heywood's recommendation, or, at least, with it.

There is very vigorous opposition before the
Naval Committee of the Senate to the confirmation of the appointment, and the probability
is that Nictawley will be beaten. If the law
should be ignored and the appointment confirmed the only way to carry the contest further, it is said, would be for the paymaster to
refuse to pay McCawley and refer the whole
matter to the Treasury Department, and even
the most vigorous of McCawley's opponents do
not believe any paymaster could be found who
would do that. So they are bending all their
energies on the Senate. Letters and telegrams
from marine officers at every station within
reach have been asent to the members of the
Naval Committee and personal appeals to their
own Senators for action on the floor of the Senate if necessary have been made by many officers.

But lest section 1.509 of the Revised Station, or, at least, with it.

the liability of a people to overestimate its own achievements, appealed to the testimony of Henri Monod, an official of the Ministry of the Interior for France. Monod was dissatisfied with the waste of life in France, and came to England to investigate the results of English the English death rate prior to 1881 had been maintained during the ten years from 1881 to 1890, no fewer than 800,000 persons would have been lost who were preserved alive. Following this calculation upon the same lines, it appears that in the fifteen years between 1880 and 1895 the saving actually effected amounted to nearly a million and a half—1,424,712.

Bescal reference was made to two diseases typhus and tubercular phthisis. Typhus, once one of the scourges of the country, is now practically bankshd. Comparatively few of the present generation of dectors have seen an example of it, while phthisis is so definitely on the decline that, within a comparatively short period, its prevalence has diminished by one-half. Reference was of course made to small-pox, and the wonderful results of Jenuer's discovery. But this point is too well and universally known to need dwelling upon. Nowadays a pock-marked face is a rarity—less than sixty years ago by a good deal, "He died of England's scourge," carved on a tombstone in Lancashire, was sufficient to tell every passer-by that he was at the grave of a victim of smallpox.

H. R. C.

HOSPITAL SURGEONS. Hard Work to Get the Place and Harder Work

Every graduate of the New York medical schools would be glad to hold for the first eighteen months of his professional life a post on the

staff of a metropolitan hospital. Perhaps one graduate in thirty obtains such an appointment. So valuable to a physician or surgeon is hospital practice in New York that graduates in medicine from all the region round flock to the annual examinations of the hospitals. If the staff vacancies are to be filled, twenty, thirty, fifty young men present themselves examination. Graduates of the Harvar. Medical School come over to these examinations, partly because there is a wider experience to be had here than in Boston, partly, perhaps, because a young man going upon the staff of a Boston hospital must come not as a graduate in medicine with the diploma of M. D., but as a sort of house pupil or apprentice in medicine.

All physicians and surgeons to the New York hospitals, save the pathologists, serve without pay. Newly graduated doctors, men from 23 to near 30 years of age, have appointments for about eighteen months. Consulting surgeons, always skilled and often highly distinguished, are glad to serve without pay for years together, because it is here that experience is gained and reputations are made. A visiting surgeon may see 10,000 or 12,000 cases in a single year, such a number as not the busiest surgeon could see in private practice during a like season.

Junior, senior, house-that is the order of pro motion in the hospital service for both physicians and surgeons. The young graduate has, in the natural order of things six months in each place. Every hospital has from three to twenty doctors on it - house staff. The house surgeon proper has general charge of all surgical cases

doctors on its house staff. The house surgeon proper has general charge of all surgical cases after they have been seen by the visiting surgeon. The same is true of the house physician. The junior or senior as the case may be, must go out with the unbulance when a call comes in. The police or private persons now and then complain that a man has join forty or fifty minutes, perhaps two hours, awaiting an ambulance after the call has been sent out. Most of the time the ambulance surgeon has an entirely sound excuse for the delay. Sometimes he is off in another direction on ambulance auty. More often, perhaps, the call finds him adding at a surgical operation, and he must reach a stopping place in that duty and change his clothing before he can go out in response to a call.

The hospital surgeon and his friends have a multitude of answers to the charge of brutality now and then brought against the former. "Should you see me at my hospital work," said the visiting surgeon of a famous hospital. "You'd think me rude and perhaps brutal. I have in two hours to see from sixty to ninety patients with all sorts of injurios from a crushed finger to a broken thigh. I must diagnose rapidly, and should I listen to demands for anasylothetics or heed the hundred and one other pleas of the patients I should never finish my work. It is so with the young ambulance surgeon knoeling beside the injured man on the sidewalk. He must do what he has to do with all speed without stopping to beed the advice or comments of a sympathetic crowd."

Tender the hospital surgeon should be, but sympathetic he must not be. The sympathetic junior is marked out for failure, just as the sympathetic nurse is marked out for failure, is at the sympathetic nurse is marked out for dismissal.

the hospital surgeon, laymen often wonder whether influence has aught to do with appointments to hospital staffs. It has and it has not. Examinations are rigid and fairly conducted, yet the man that passes the best technical examination is not always the man that gets the apnointment. Yet, on the other hand, an incapable man is seldom or never appointed. The personal equation always helps to determine an appointment. A candidate's appearance, manner, speech, and general record at school are taken into consideration. The examiners are often the same men who have instructed the candidates in the medical schools, and an examiner puts together his knowledge of a candidate as obtained in three or four years' contact with him in the lecture room and at clinics, and the knowledge of him drawn from the examination. A student of known had habits, of conspicuous defects, will not be appointed to a hospital staff, no matter how good his examination.

It is the most ambitious students that seek appointments to the hospital staffs, and a man is seldom content to leave a New York hospital and settle down to practice in a country town. The ablest hospital surgeons attract the

is scioon content to heave a New 1072 moni-tal and settle down to practice in a country town. The ablest hospital surgeons attract the attention of visiting missions and others dis-tinguished in the profession and obtain partner-ships or promotion of some other kind. Some settle in New York, and few are content with anything less than a considerable city.

A NEW BANGE FINDER

Wonderful Results Expected from an Australian's Invention.

An invention which promises to be of very great military value has been perfected by A. Alcock of the Australian Electric Lighting Company, in Sydney, N. S. W. It is an incenous contrivance, worked by electric currents, for finding the position of vessels in the vicinity

The resources of the world in this respect up to the present have been limited to two or three appliances. One, known as the Watkin position finder, works only within certain lines. There is another system known as Fiske, but this, besides being limited in range of operation, is cumbrous and slow in application. The new invention, as far as its application has been illustrated, a small scale model, is controlled so easily and swiftly, and is worked with such exactness, that its adoption would render the position of any vessel in hostile waters one of exceptional danger. A number of military men, on invitation of the inventor, were treated to a practical illustration of its working recently in Sydney. One man, in a perfectly secure position on shore, can sit or stand at the telescope, and by simply turning and elevating or depressing the same, in accordance with the motions of a vessel, can cause to be indicated on discs, placed one to each gain in a fort, the exact range and bearing of the vessel from each gain.

The means of communication between telescope and indicator is wire, along which an olectric current flows, the current being set in motion as soon as the telescope begins to move. The first movement shows the range of the vessel and, by the switching of an arm, the hand on the same dial is made to show the bearing, the whole thing being done automatically and instantaneously. The only personal effort is that the bearing indicated electrically has to be submitted to trigonometrical calculation which, by means of an arrangement of triangular rules, is done in a few seconds, and the gun placed on its proper alignment. tion finder, works only within certain There is another system known as Fiske, but

is done in a few seconds, and the gun praced on its proper alignment.

Lieut.-Col. Umpheloy and other military men who inspected the appliances expressed great admiration of it. It differs from other position finders, not only in simplicity of application, but in the valuable feature that it can be applied simultaneously to any number of guns in any position on one or both sides of a marine channel or other waterway. Mr. Alouck has been engaged for about twelve years in completing his invention.

On a High Wheel.

A high wheel is now very rarely seen. But one does appear occasionally, and sometimes one in perfect trim. Such a wheel, full nickelplated, was seen the other day in Ninth street. The rider, in white flannels throughout, main-The rider, is waite names throughout, maintained his equilibrium perfectly, and as easily in the ston crossing of Broadway as anywhere else. There happened to come up Broadway at the same time a man on a safety who turned into North street, just ahear of the man on the high wheel. They rode away over the smooth naplait only about ten feet apart, and the high wheel did not suffer in the contrast.

BAD BLOOD IN THE NINTH.

A ROW IN THE REGIMENT OVER A RIFLE MATCH.

company & Men Allege That the Shooting Scores at Creedmoor Were Doctored to En-able Company A's Team to Win the Seward Trophy-An Investigation New in Progress A controversy which has arisen in the Ninth

Regiment between Companies A and K over the rifle shooting contest for the Seward trophy at Croedmoor recently not only brings into question the honesty of the company which holds the trophy, but threatens to destroy the reliability of many of the scores made at Croedmoor, by showing that certain of the scorers there are un trustworthy. These accusations have been embodied in formal sworn charges, which have been presented to Col. William Seward, and Col. Seward has ordered an investigation, which is now under way.

The charges allege that members of Company A resorted to unfair methods in getting the cores which won the trophy for that company, and certain scorers are accused of acting un fairly in complicity with the Company A men. The Seward trophy, over which the trouble arose, is one offered by the Colonel.

On the day the Ninth was last ordered to the shooting range the final winning of the trophy lay between Companies A and K, whose previous scores were a tie. Company A already held all the other regimental prizes for shooting, besides having the prize for enlisting the most men, This is Capt, Samuel S. O'Connor's company, which attracted considerable comment at the time the Ninth was ordered to attend divin service by refusing to turn out because Chanain Madison C. Peters bad spoken disrespectfully of the Roman Catholic Church, Capt William F. Morris commands Company K.

Before the shooting began Capt. Morris determined to take unusal precautions against any unfairness on the part of Capt. O'Connor's company, and a number of men were detailed to keep close watch of the shooting and scoring of their opponents. Among these watchers were Corporal O. Bubaseck and Privates F. A. Roeder and F. C. Weisner, who have made affiliavits that some of Company A's men were credited with scores to which they were not entitled. In one case, they assert, that a man who made four misses and should have been disqualified, received a qualitying score. They also allege that after making these observations they made a demand upon the scorer to show the cards of certain of Company A's men, and the scorer at first denied that he had kept the score, and afterward acted in a suspicious manner.

The filing of the charges has caused much feeling between the companies, and members of Company A have threatened to make it hot for their three accusers—spies, as they call them—in case these land stray into their quarters. On the other hand, members of Company K say that Capt. O'Connor took some of the scorers at Creedmoor to dinner, and that this was an unusual proceeding. Capt. O'Connor asy he didn't take the scorers to dinner. "Their meals are paid for by the State," he added. "My company won the trophy fairly. The investigations will show this, and we will surely get the trough for keeps."

Capt. Morris would say nothing about the trouble yesterday except that the charges had been forwarded to Col. Seward and that the had no opinion to express upon the merits of the controversy between the companies, but that he had cause to believe that shooting for trophies was not altogether a good thing. "It engenders ill feeling frequently," he said, "and it is a question in my mind whether the shooting for them had not better be abolished." Before the shooting began Capt. Morris de ermined to take unusal precautions against

PENNSYLVANIA'S ALIEN TAX. It Has Started a Rush for Naturalization Pa-

Recently there has been a great boom in natrealization in the Keystone State. The reason for it is to be found in the fact that Gov. Hastings has signed the bill fining an employer three cents a day for every foreign-born unnaturalized male person over twenty-one years of age in service. Failure to report the employment of allens is made a misdemeanor punishable by a fine of not less than \$200 and not more than \$1,000. It has been said by some persons that the inhabit-ants of Philadelphia are slow when matters of public importance are to be attended to, but the contrary of this appears to be proved by the alacrity with which the business of citizenmaking is going on in the Quaker City. In one this week 172 cliens took out naturalization papers, and the Judges were kept busy in making and rejecting citizens. Judge Butler naturalized forty-seven men and rejected twenty-five appli-cants, while Judge Dallas naturalized eighty

forty-seven men and rejected twenty-five applicants, while Judge Dallas naturalized eighty and rejected forty-four.

The law which Gov. Hastings has signed, which accounts for this increase in naturalization provides that one half of the tax is to be used for school purposes and the other half for defraying the general expenses of county government. Employers of alien labor are required to keep exact records of the foreigners employed and the days they work, which records are to be open to the examination of the County Commissioners. Many serious objections have been urged against the new law by those who say that it will be without practical effect in doing away with the causes of complaint based on the employment of aliens, and by others who allege that it is discriminating and impracticable throughout. It is said that while it will put a premium on citizenshin, the tax is so small that it will amount to little, especially as the employers and not the laborers are to pay it. Figuring the number of working days at 320 in a year, the whole tax would be \$9.00 a year for the employment of an alien, and it is pointed out that a contractor desiring to engage the services of aliens could well afford to pay \$10 a year or so for the privilege. Another objection is found in the fact that an alien who disguises the fact may be, the fact it hat there has been a large increase in the number of naturalizations made in Pennsylvania, not only in the city of Philadelphia, but in Pittsburg and other cities, since the new law went into effect, and the number of aliens in the State will probably be materially diminished by it unless more aliens arrive. diminished by it unless more aliens arrive

STATE RAILROAD SCHEME.

Texas Farmers Think They Have a Way to

Solve the Freight Hate Question. DALLAS, Tex., July 3,-The Texas Farmers' Alliance will hold its annual meeting at Dallas from July 17 to 21. The State Grange will be annual session at Dublin during the same dates. A joint movement has been arranged by leaders for the two organizations to take a stand on the freight rate question. W. A. Shaw, editor of the Texas Furmer, who is in clos touch with the leading men in the Alliance and

the Grange, said to-day; "The farmers, regardless of political affilia tion, are fully stirred up on the freight rate question, and I have the best of authority for saying that the two organizations will get to gether on the proposition of building a State railroad from the Indian Territory line to the railroad from the Indian Territory line to the Guif. The enterprise has been convassed thoroughly by the leaders of both organizations, and they are agreed that a State railroad would be the true freight rate regulator. The All ance formers, who are mostly Populiats, believe the State should build and own the road, while the Democratic or Grange farmers are of opinion that it is about that to apply ex-flow. Buyers idea as to the investment of the school fund in railroad bonds and that a safe investment for the school money and that a safe investment for the school mone would be the first mortizage bonds of the Stat railroad. The Democratic farmers also thin that the State should use its centrict falor in it construction of such a road, the labor to be pai for in mortgage on the caractures of the road. construction of such a road, the labor to be paid for in mortgage on the carathese of the road.

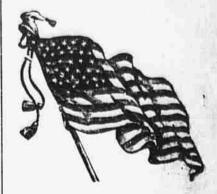
"The two organizations well come to an agree-ment on views, so nearly alto. Then it will be no time at all outil Texas will have a road ex-tending from the Guif to Mantoba, with no end of branches, taps, and lateral lines. The states to the north of us are ripe for the enterprise."

The Spires of St. Patrick's.

While some of the city's spires have been dwarfed by the contiguity of tall modern business buildings, there are some that still soar skyward. Conspicuous among these are the akyward. Conspictions among these are the twin spires of St. Patrick's Cathedral, at Fifth avenue and Fittleth street. Those spires may be seen for a long distance, and from many directions. There are some beautiful views of them to be had across Centut Park, and seen from the high lands of the Phisades, across the Hudson, these lofty marble spires are a striking feature of the upper city.

HEARN

American Sale



To-morrow we celebrate OUR STORES ARE CLOSED

These Lists Partly Tell

Special Attractions THIRD WEEK

of this GREAT SALE!

SILKS

give these glistening Values! Mack Grenadines, with Brocaded stripes of satin-24 inches wide; value .98. Brocaded Taffeta with Grenadine Stripes.... Rich Brocaded Silk Grenadines.....

Slack Brocaded Taffetas 24 inch..... Navy-and-White Printed China Silks—27 inches wide—new styles, in large and medium designs.....

White Brocaded India Silks.... Striped and Figured Japans—light grounds...
30 inch Fancy Navy and White Indias.....
White Habutai Silks——36 inches wide.....
Printed Japan Silks——24 inches wide.....

Ladies' Underwear These short lines, teracly telling of some America Sale Offerings in this department, do not give full conception of values represented --- but in it not pleasant to be agreeably surprised when you see the

quali.ics? CORSET COVERS Fine Cambric—Tuck front or fancy V yoke... 17
Low and High neck—fancy front and back... 37
Fancy Trim'd with lace and insertings...... 69 Colored Lawn—long alcoves—all stace...... Fine Cambric—V neck—large stres to 50 tneh

LADIES' DRAWERS Extra Muslin and Cambric-fine Emb'y...... White and fancy-lace or emb'y .. NIGHT DRESSES

Empire, tucked yoke or four insertings......
Several famey styles—lace or Emb'y...... 20 styles in Col'd, Fancy and White Ladies' Extra sizes to 52 bust. Children's Gowns-Emb'y and ruffle-4 to 14. LADIES' PETTICOATS

Colored Lawn-all shades-d'ble ruffe..... Fancy Lawn-Spanish flounce ... White Muslin-Umbrella-Emb'y and tucks. 12 styles -- elaborate lace or Embroidery With 20-inch flounce of solid tucks and lace.. 1.49 WAISTS AND DRESSING SACQUES

.49

White Lawn Pointed Yoke—laundered collar. Grenadine effects—soft and stiff collars...... Boautiful Walats with col'd Insertings 1.98 Empire Dressing Sacques-white and Persian. CORSETS AND WAISTS Children's Summer Waists-garters attached

Ladies' Summer Net—stiff bust—long walst... Summer Net and Contille Bicycle Corsets

> This Sale Interests Manufacturers

Customers Strangers Everybody in decorations of our stores and by Goods and Prices and in cornestness of efforts

to popularize AMERICAN PRODUCTIONS.

Thus RIBBONS This week 3 Inch Satins, Taffetas and Stripe Gauzes 195 Sty and 4 inch Moire and Faucy Taffetas..... 5 inch Plain and Moire Taffetas and Novelties

Thus HANDKERCHIEFS This week Ladies Col'd Emb'd with face edge; worth . 124 Children's Col'd and White Hemstitch. Men's Taped hem'd and Col'd Hemstitch. Men's Hemstitch with Initial

Ludies' all Linen H. S .- famy drawn work 125 Thus LEATHER GOODS This week Sole Leather Dress Suit Cases - 22 and 24 inch 3.98

tusset Canvas Cov'd Trunks-2 strapslinen lined Duck Cov'd Steamer-Best made-28 tuch 4.98 Canvas Cov'd Dress Strong brass lock 2.49
"Majestle" Finest and strongest made 14.03
Solid Cedar and Cedar lined Chests 5.67 to 11.34 Sole Leather Trunk Straps—all sizes.... Shawl Straps—solid leather Telescope Cascs -olive canvas ... 08 to 2.49 Blacking Sets Collar and Cuff Boxes

Thus HAMMOCKS and CANOPIES Close wove Hammocks—pillow and vallance. 1.79 Satlor made—spreaders and movable pillow. 2.69 Mosquito Not Canopies folding frame...... 1.09

Thus WHITE GOODS This week Fine White Organdies — 10 inches wide 7 % 80 inch Emb'd Dotted Swisses-linen shades .12 % Grass Linens—B6 inches wide; were .17..... Fine White Cambrice—80 inches wide _ _ Heavy White and Col'd Ducks; worth .18 English Long Cioth-13 yard pleco....besser